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Surveying Plastics

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This war worker packs her lunch in a transparent plastic lunchbox; these are replacing the former metal containers

Science will provide new plastic materials for the consumer after the war, says Janet Russell

PLASTICS, which have been found necessary in an all-out war program, have almost disappeared from the consumer market. When the war need has passed, however, these plastics will return to the market in an improved form, together with new synthetics unknown as yet to the public. New materials open an almost unlimited field which science promises to bring to the consumer's level after the war.

The war shows that plastics need no longer be considered a substitute. They have found their own niche. Plastics may be the key to a new industrial era. Plastic houses and plastic airplanes are within the realm of reason.

Usable plastics have been made from such materials as milk, corncobs, soybeans, wood, coal tar and other organic and inorganic compounds.

Prefabricated plastic houses may become a reality because of the discovery of plastic plywood, made of tissue-thin sheets of wood bound together with a plastic substance. It is then molded and baked.

New plastic combinations have found special war uses. A mixture of a plastic and cast iron will give a practical blackout street lamp which allows only a small amount of light to pass and which will withstand bomb fragments and shrapnel.

A soft form of ethyl cellulose may replace as much as 60,000 tons of rubber a year by use in raincoats, footwear, golf balls, baby pants, gloves, hospital sheeting, garden hose and electric wire insulation.

While once believed impossible, light now can turn corners by means of two types of plastic resins. Curved transparent tongue depressors made of this type of plastic with light attached have been used by doctors to illuminate patients' throats and also have become part of many home medicine chests. A highly resistant form of this plastic has been used in considerable quantities for airplane windows.

Nylon, which achieved great popularity for women's hose, will return to that capacity after it has served its war need in parachutes. Nylon fiber also has many other uses such as bristles in certain types of brushes, tennis rackets and electrical insulation.

Casein from skim milk or soybeans has been treated to form a plastic material which is used for buttons, buckles, dress trimmings, beads and other novelties. These plastics are readily colored and non-inflammable, but they cannot be used in contact with water.

From acetylene come the vinyl resins which in their various forms have found many uses. These resins make a substitute for rubber when used as coatings for fabrics or cables. A dissolved form is an adhesive and is also an ingredient in inks and paints. Another form has become a competitor of shellac in the phonograph record field.

This same form composes the currently popular transparent belts, suspenders and watch straps. A weather-resistant woven fabric, safety glass, floor tiles and dentures are only a few of the different uses for vinyl resins.

Outstanding ingredient in surface finishes are the alkyl resins. They are blended with other synthetics to produce printing inks, automobile finishes, outdoor paints and wrinkle finishes.

Characteristics such as water resistance, heat and cold resistance, chemical resistance, electrical insulation properties, transparence or color may be of prime importance for one use but of relative unimportance for another use.

No plastic can claim the highest rating in strength, for each plastic differs in the various types of strength —impact, tensile, flexural and compressive. The cost of the finished product also is unstable as it is determined by both material and molding costs.